Clmpto
08/25/2000

KLV

Please cancel claims 1-24, without prejudice or disclaimer.

Please cancel claims 25-35 and 37, without prejudice or disclaimer.

Please amend claims 36 and 38 as follows:

36. An optical recording /reproducing apparatus f recording, reproducing or erasing an information signal any one of N types (where N ≥ 2) of optical discs havin layers of different thicknesses, each type of said opti having at least said first layer being transparent and layer for storing information, said apparatus comprisin

a converging means having different numerical ape for converging a light flux on said second layer of corresponding ones of said N types of optical discs,

wherein said converging means converges said ligh as a spot with a smaller diameter D and performs aberra correction at said spot by employing a larger one of sa numerical apertures, with respect to one of said optica having a thinner one of said first layers, and

wherein a thickness of each of said first layers N types of optical discs is about 1.2mm or less.

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38. An optical recording /reproducing system com

(a) an optical recording/reproducing apparatus fo recording, reproducing or erasing an information signal onto/from any one of N types (where N ≥ 2) of optical d having first layers of different thicknesses, each type optical discs having at least said first layer being transparent and a second layer for storing information, apparatus comprising:

photo detecting means for detecting reflective lig said optical discs; and

a converging means having different numerical aper for converging a light flux on said second layer of corresponding ones of said N types of optical discs,

wherein said converging means converges said light as a spot with a smaller diameter D and performs aberrat correction at said spot by employing a larger one of sai numerical apertures, with respect to one of said optical having a thinner one of said first layers, and

wherein thicknesses of said first layers of said N of optical discs are about 1.2mm or less than 1.2mm,

(b) a signal processing means, responsive to one a reproduction signal, corresponding to said information signal, from said photo detecting means and (ii) receipt recording data, corresponding to said information signal recording on said disk, for generating an output signal corresponding to said information signal for performing a reproducing operation and a recording operation; and

(c) a system controlling means coupled to said sig processing means for controlling generation of the outpu signal of said signal processing means.

Please add the following new claims 39-45:

39. An optical recording/reproducing apparatus acc
to claim 36, wherein each of said first layers compr
transparent substrate.

40. An optical recording/reproducing system accord
claim 38, herein each of said first layers compri
transparent substrate.

41. An optical recording/reproducing apparat
recording, reproducing or erasing an information signal ont
any one of N types (where N ≥ 2) of optical discs having
layers of different thicknesses, each type of said optical
having at least said first layer being transparent and a
layer for storing information, said apparatus comprising:

a converging optical system including a first conv
means comprising a first numerical aperture and a
converging means comprising a second numerical aperture
converging optical system for converging, by employing
said first converging means and said second converging me
light flux on said second layer of one of said N types of c
discs, said, first numerical aperture and said second num
aperture being different from each other,

wherein said one of said first converging means an
second converging means employed by said converging c
system converges said light flux as a spot with a s
diameter D and performs aberration correction at said sp

employing a larger one of said numerical apertures, w
to one of said optical discs having a thinner one of
layers, and

wherein a thickness of each of said first laye
N types of optical discs is about 1.2mm or less.

42. An optical recording/reproducing apparatus a
claim 41, herein each of said first layers c
transparent substrate.

43. An optical recording/reproducing system co

(a) an optical recording/reproducing appa
recording, reproducing or erasing an information signa
any one of N types (where N ≥ 2) of optical discs h
layers of different thicknesses, each type of said op
having at least said first layer being transparent a
layer for storing information, said apparatus compri

photo detecting means for detecting reflective
said optical discs; and

a converging optical system including a first
means comprising a first numerical aperture and
converging means comprising a second numerical ape
converging optical system for converging, by emplo
said first converging means and said second convergi
light flux on said second layer of one of said N types

discs, said first numerical aperture and said second nume
aperture being different from each other,

wherein said one of said first converging means and
second converging means employed by said converging op
system converges said light flux as a spot with a sm
diameter D and performs aberration correction at said spo
employing a larger one of said numerical apertures, with re
to one of said optical discs having a thinner one of said
layers, and

wherein a thickness of each of said first layers of
N types of optical discs is about 1.2mm or less;

(b) a signal processing means, responsive to one of
reproduction signal, corresponding to said information si
from said photo detecting means and (ii) receipt of reco
data, corresponding to said information signal, for recordi
said disk, for generating an output signal corresponding to
information signal for performing one of a reproducing oper
and a recording operation; and

(c) a system controlling means coupled to said s
processing means for controlling generation of the output s
of said signal processing means.

44. An optical recording/reproducing system accordin claim 43, herein each of said first layers comprise transparent substrate.

45. A system comprising:

(a) an optical recording/reproducing apparatus recording, reproducing or erasing an information signal onto/ any one of N types (where N ≥ 2) of optical discs having f layers of different thicknesses, each type of said optical d having at least said first layer being transparent and a se layer for storing information, said apparatus comprising:

photo detecting means for detecting reflective light said optical discs; and

a converging means having different numerical apertures converging a light flux on said second layer of correspor ones of said N types of optical discs,

wherein said converging means converges said light flu a spot with a smaller diameter D and performs aberra correction at said spot by employing a larger one of numerical apertures, with respect to one of said optical d having a thinner one of said first layers, and

wherein thicknesses of said first layers of said N type optical discs are about 1.2mm or less than 1.2mm,

(b) a signal processing apparatus including:

signal processing means, responsive to one of (i) a reproduction signal, corresponding to said information si from said photo detecting means and (ii) receipt of recor data, corresponding to said information signal, for recor on said disk, for generating an output signal correspondi said information signal for performing one of a reproduci operation and a recording operation on said discs; and

(c) a system controlling means coupled to said signal proc means for controlling generation of the output signal of said sic processing means.